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Generate Collection **Print**

L5: Entry 1 of 4

File: TDBD

May 1, 1984

TDB-ACC-NO: NN84056530

DISCLOSURE TITLE: Encryption Method for Providing Tagged Storage

PUBLICATION-DATA:

IBM Technical Disclosure Bulletin, May 1984, US

VOLUME NUMBER: 26

ISSUE NUMBER: 12

PAGE NUMBER: 6530 - 6536

PUBLICATION-DATE: May 1, 1984 (19840501)

CROSS REFERENCE: 0018-8689-26-12-6530

DISCLOSURE TEXT:

- The IBM System/38 has implemented "capability addressing". At the user interface, 16-byte pointers, called "system pointers", are constructed and presented to the Supervisor to perform high level functions. These system pointers represent address spaces, such as data base files, which the user cannot manipulate directly, but must use Supervisor-defined functions to manipulate. These system pointers may and often do include the authority to certain operations. Thus, the Supervisor uses the contents of pointers to validate function requests. This allows a flexible, high performance architecture. Similar 16-byte pointers control access to "Space Objects" which are linear address spaces. These address spaces contain 16-byte pointers and data together. The user has direct addressability to "Space Objects", allowing manipulation of multiple address spaces. Note that one option is to make a "Space Object" permanent. Unlike ordinary computational storage, pointers stored in "Space Objects" can be permanently located on Direct Access Storage Devices (DASDs). This form of addressing, where all permanent storage on the system is defined as addressable, segmented address spaces are called Single Level Store. The combination of Single Level Store and 16-byte capability pointers have been proposed for several architectures as well as being implemented on System/38. Other such architectures have come to similar conclusions about pointer size (16 bytes) and storing authority information in the pointer. This 16-byte pointer interface represents most of the protection mechanism of such architectures. That is, the ability to address storage represented by the 16-byte pointer is controlled by preventing the use of counterfeit pointers. The system requires a method of checking a pointer before loading it into a register capable of loading data storage. The remaining control is to prevent access to a limited region of each address space and to disallow a few instructions from being issued by the user. The usual solution to this problem is to implement a "tagged" main storage. Every 16-byte region of main storage has an associated bit which indicates whether or not the 16-byte area has a valid pointer. Ordinary arithmetic operations destroy this tag. Only special privileged Supervisor instructions may turn the tag bit on, creating a pointer. Thus, 16-byte pointers may only be created under Supervisor, and attempts to create counterfeit pointers are detected by checking the hardware tag bit. Because the storage of the tags in main storage and on the DASD is a major complication (especially in trying to use common hardware with non-tagged machines), it would be extremely desirable to "tag" the pointers in a different way. This method: - Solves the problem of tagging without using hardware tags. - Has almost the same performance characteristics. - Does not affect how

non-Supervisor code views the system. - With one exception, has the same security as the original hardware method. - Maintains position and time independence. Whether or not a pointer is valid does not depend on when it was constructed or its location. It is only dependent on the 16-byte pointer contents itself. The problem of tagging pointers without using hardware tags is twofold. First, the legitimate presentation of pointers must be cheaply validated. Second, the attempt to alter arbitrary bytes of storage to appear to be a valid pointer must be prevented. In particular, it must not be possible to take a pointer which contains particular kinds of authority, such as retrieving records, and upgrade the authority, such as to add insert authority. Another important aspect is that valid pointers must be permitted to be freely copied. The key notion of capability architecture is once a copy is given out with a given authority, such authority must be assumed given to the recipient for all time. Moreover, the recipient may copy it at will. This property is understood and expected by user level code. To limit the number of tag bits, 16 bytes has always been the size of such pointers, cryptography can be used. However, it is easy to compress the meaningful contents of a pointer into only 8 bytes. Two high-order bits would describe the pointer type (system, space, possibly others), 5 bytes less two bits would contain the Address Space Identifier. A 3-byte offset, either for the offset within the address space (for Space Objects) or for authority information (System Object Pointers), completing 8 bytes. This leaves an 8-byte area for a cryptogram to replace the hardware tag bit. A brief summary of relevant cryptography will lay the basis for how this can be done. In cryptographic authentication there is usually the following: - Some important data to be protected. - The need to protect not only the data, but to validate that the data came from a valid sender. The key to the solution is the existence of cryptographic algorithms with certain properties: - An encryption function, f , which is a function of a key x and arbitrary input y . Thus, $z = f(x, y)$ forms a cryptogram z from key x using plaintext y . - For any proposed f there is a counterfeit encryption function F which performs $z = F(y)$. That is, there is some function F which mimics the cipher without the key. Additionally, since both are reversible, there are inverse functions $y = g(x, z)$ (the legitimate decryption function) and $y = G(z)$ (the illicit decryption function) which reverse f and F . - The function G can be used by an opponent to illicitly obtain the plaintext y from cryptogram z . - Function F creates counterfeit cryptograms from plaintext y . - Cryptographic functions (such as the Data Encryption Standard (DES)) exist which have the property that " f " and " g " are reasonably efficient to compute and that " F " and " G " are computationally infeasible. For the Data Encryption Standard, this is believed to be true because the only known G is simply to try $g(x, y)$ for all x until cryptogram z is observed. Since there are 2 to the 56th keys, and since 2 to the 55 average trials would normally be needed and 2 to the 49 or fewer trials would succeed less than one percent of the time, the system is asserted to be computationally infeasible to solve with foreseeable technology. As with all encryptions, someone may discover more efficient illicit F or G functions, but the system has withstood close scrutiny for a considerable period which allows as much confidence as can be had for a cryptosystem. - An additional restriction comes from the following. Every object created must have a pointer and must be tagged. If the encryption is system wide, then all users will have access to the function $f(x, y')$. Therefore, users can collect their own pairs z', y' in an attempt to discover someone else's z and y . Also possible is an attempt to deduce x . Once again, the Data Encryption Standard is believed to be invulnerable even to this level of attack, even with large numbers of z' and y' sets available. The remaining element of the solution is that Supervisor has an encapsulated portion of each address space which users cannot reference or display and that the 5-byte Address Space Identifier is unique over the life of the system. System/38 has several levels of authorization in the system pointer. Suppose, for simplification, there were only four levels. For example: None, Read, Write/Modify, Destroy. Suppose these levels were hierarchical such that destroy implied write, write implied read, and read implied none. Suppose a secure procedure existed for setting five system-wide secret keys (x_1 thru x_5). When Supervisor creates an object, it forms four cryptograms and places them in the encapsulated portion of the object: - $z_1 = f(x_1, y)$, where y is a pointer to object y without authority. - $z_2 = f(x_2, y)$, where y is a pointer with read authority. - $z_3 = f(x_3, y)$, where y is a pointer with write/modify authority. - $z_4 = f(x_4, y)$, where y is a pointer with destroy authority. - For Space Objects only, set $z_5 = f(x_5, y)$, where y is a pointer of type

"space" (the others above had type "system"). When storing a System Pointer, Supervisor examines authority requested and copy z1, z2, z3, or z4 into the area reserved for the cryptogram/tag. Note that Supervisor may reject requests when the user asks Supervisor for more authority than the user is entitled to have. Space Pointers, when created, will always use cryptogram z5, regardless of offset. An encrypted pointer is shown in the figure below. ***** SEE ORIGINAL DOCUMENT ***** When loading a System Pointer, the system examines the authority in the pointer and selects a single cryptogram in the object header for comparison. The cryptogram selected is based on the highest level of hierarchical authority in the presented pointer. A match is given only if the cryptogram in the other portion of the pointer agrees with the selected cryptogram. The fact that other cryptograms may match, such as those with higher or lower hierarchical authority, is not checked. Space Pointers may be loaded after checking z5 and a bit indicating that the object is indeed a space object against the user-provided cryptogram. A hierarchical authority is not strictly required, but is a practical requirement. Even with only 4 authorities, 16 cryptograms would be required to have all of the authorities independent. This is already burdensome and rises to 32 if a fifth authority is added. Because more than one cryptogram is clearly required, a hierarchy of authorities is the natural choice. Assuming that the cryptograms are impossible to counterfeit, the following may be observed: - The Pointers may be freely copied. Since the cryptogram moves with the pointer, the pointer is just as valid in the copy as in the original. Likewise, a bogus pointer is not enhanced by moving it to some special place. - Pointers may not have their authority enhanced. In order to load a pointer with higher authority, a new cryptogram must also be presented. If one possesses a pointer, then one knows what its cryptogram is. However, if one possesses a pointer to an object with a low hierarchical authority, it is computationally infeasible to construct a pointer of greater authority. - Pointers may not be constructed. If one knows the low-order eight bytes of an object which one has no authority to, it is computationally infeasible to construct a pointer from scratch. For a system such as System/38: - All pointers must be validated before their first use. Note that not all uses of pointers must be validated; they might be loaded into an internal register and used multiple times. - No references must be made using pointers loaded by a program with superior authority. System 38 allows certain programs to adopt "User Profiles". This capability allows users to obtain pointers with authority which would otherwise be unavailable.

Such programs must not return to their caller with internally loaded pointers accessible. - No references must be allowed to the encapsulated part of the object which contains the cryptograms. - No references must be allowed to the secret keys x1 through x5. Key management is no different than the standard key management problem for a communications network. Since the user can only load pointers by presenting a 16-byte pointer, it is required that the user not be able to generate bogus pointers. One way a user might cause mischief is to alter the type bits to convert a system pointer to a space pointer. This would fool Supervisor into thinking the object was a space rather than an encapsulated object. However, since the plaintext is changed, the cryptogram must also change to successfully present the pointer. This is asserted as computationally infeasible when the DES is used. A user might turn authority bits on to improve hierarchical authority. However, the cryptogram must be altered. This is computationally infeasible. Revoking authority of a System Pointer can be done, but will not work unless the user has created a different pointer with less authority so the cryptogram may be copied. In such a case, the same interface could as easily be used. This case seems degenerate, but it is important to note for compatibility. If users clobber their own pointers, this should be detected and flagged. Revoking authority is one such alteration. Alteration of the cryptogram by the user does not solve the cipher to attempt to present fully authorized pointers because that is computationally infeasible. Instead, all possible cryptograms are presented directly. To defeat this attack, it is necessary only for Supervisor to assure that a particular exception, presentation of an invalid pointer, takes a finite time. Explicitly reading in a particular DASD sector, for example, will provide about 50 milliseconds or more, independent of Central Processing Unit (CPU) speed. Or a CPU loop of model dependent size may be executed to guarantee a certain speed. For 2 to the 63 average trials it would take 292 thousand years at one microsecond per trial. An important side note is

that it would be nearly impossible for an uninitialized pointer to be accidentally loaded, i.e., an attempt to load arbitrary bytes as a pointer due to a bug is for all practical purposes guaranteed to fail. Exhaustive DES attack is also possible but with an average of 2 to the 55th trials, 1100 years would be required at a microsecond per trial. Attempts to steal arbitrary files is also possible. Another approach is to essentially fix the cryptogram and try all possible plaintexts. The malicious user wants to wipe out "anybody's" file rather than a particular file, such as payroll.

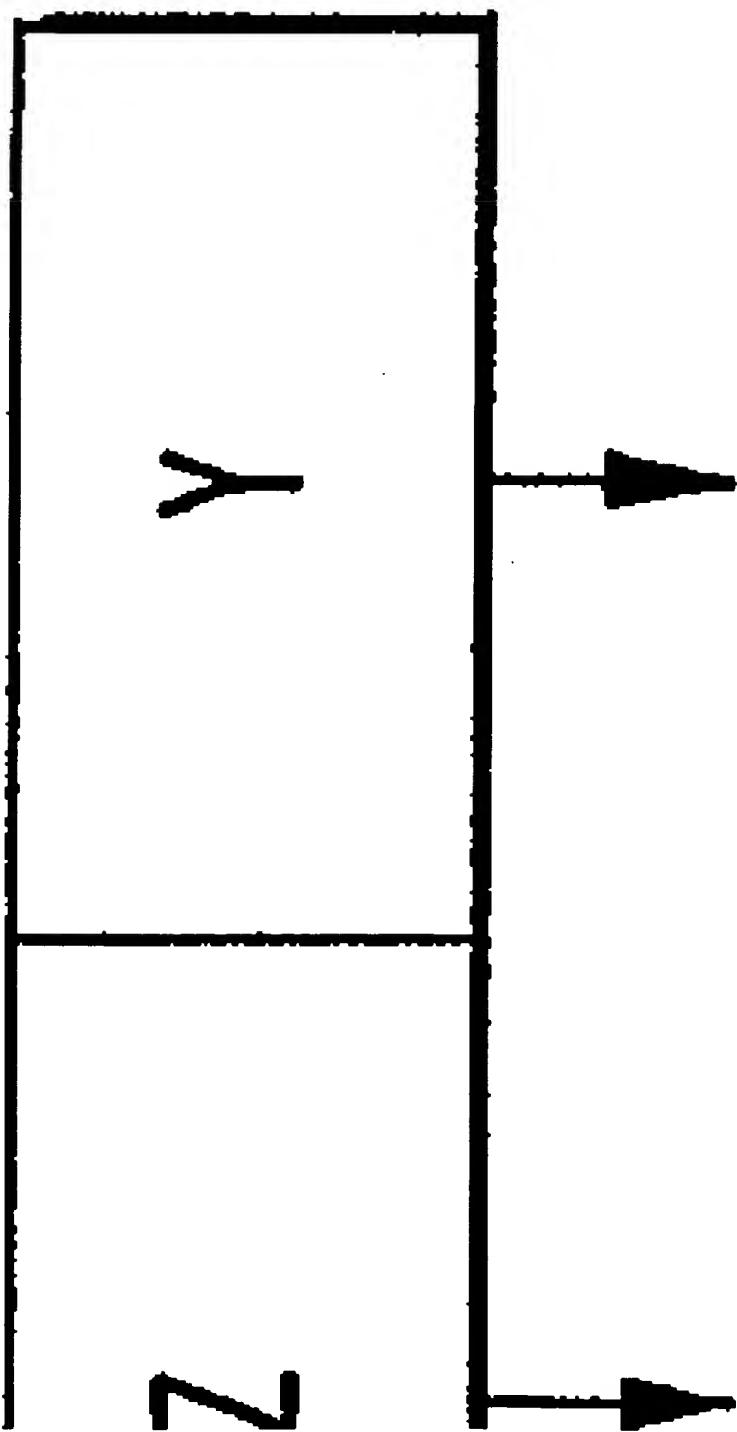
Statistically, this is the classic problem of removing balls from a well stirred urn without replacement. However, while the expression is easily written, the numbers (2 to the 64 factorial) are impossible to compute and Stirling's formula has too large an error for this calculation. However, it is possible to overestimate the malicious user's odds of success by approximating the large well stirred urn with a "smaller" well stirred urn with replacement. Such calculations show the costs are still on the order of 2 to the 63rd total trials. Attempts can be made to steal the image of a pointer. One feature of genuine hardware tagging which this solution cannot match is that of the "dump attack". If a malicious user obtains a storage dump with pointers displayed in hexadecimal form, he may copy such pointers and present them. With true hardware tagging, this attack is not possible. Accordingly, storage dumps have to be carefully structured and limited. However, such dumps are available only through service interfaces in System/38. As long as dumps are controlled, the system has no less of an exposure than it already has to various forms of invasion. For instance, if the malicious user is allowed service interfaces on today's System/38, pointers could be constructed, or more simply, authorities could be directly granted, obviating the need to illicitly create pointers. Given the enormous odds against arbitrary storage of appearing tagged when it is not, dump code of all kinds could present labeled information in place of detected tags, greatly limiting the problem. The "dump attack" is a weakness compared to true hardware tagging. System/38 has a translated interface, users cannot directly present instructions, but must have them generated from a program template. Thus, System/38 may support encapsulated space objects by controlling storage references in the generated code. Certain instructions in the current System/38 implementation assist this reference control. For machines which allow direct code generation, the mechanism works as follows:

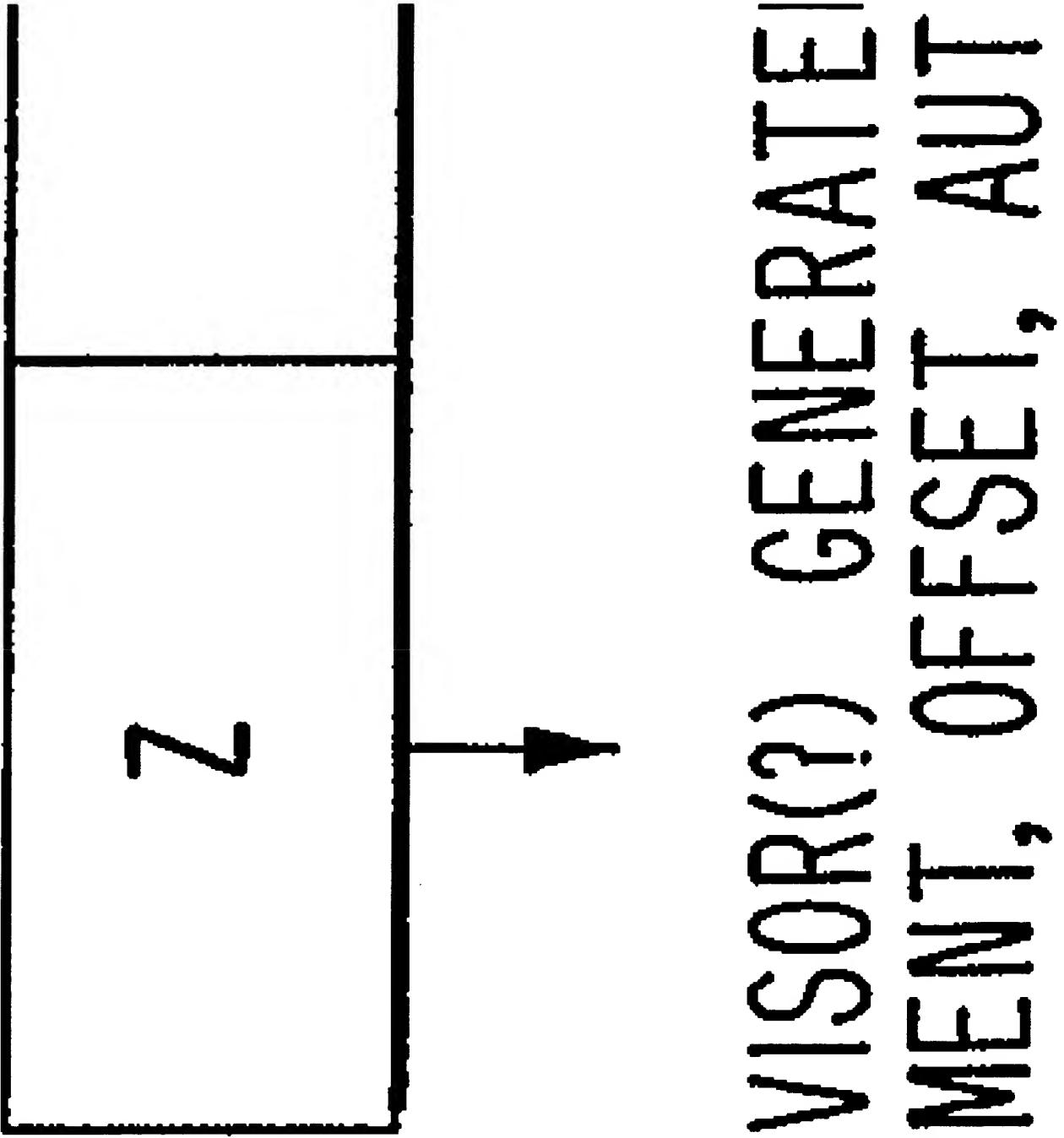
- Each storage reference has the high-order N bits fed to an N+1 input AND gate. The "extra" input would be the "privilege bit". This bit is a flip-flop which is turned on by any suitable mechanism, such as a System/370 SVC. If the address bits are zero and the inverse of the privilege bit is also zero, the reference is allowed.
- Since single level store of some kind is implied, the load of a segment register would have to be privileged. One or two operations would be required. One would simply load the segment register with the Address Identifier. The second operation would use standard priority encoding circuits to implement "Load Cryptogram Address" from the contents of the eight bytes of pointer. Both operations could be combined into a single, privileged instruction.

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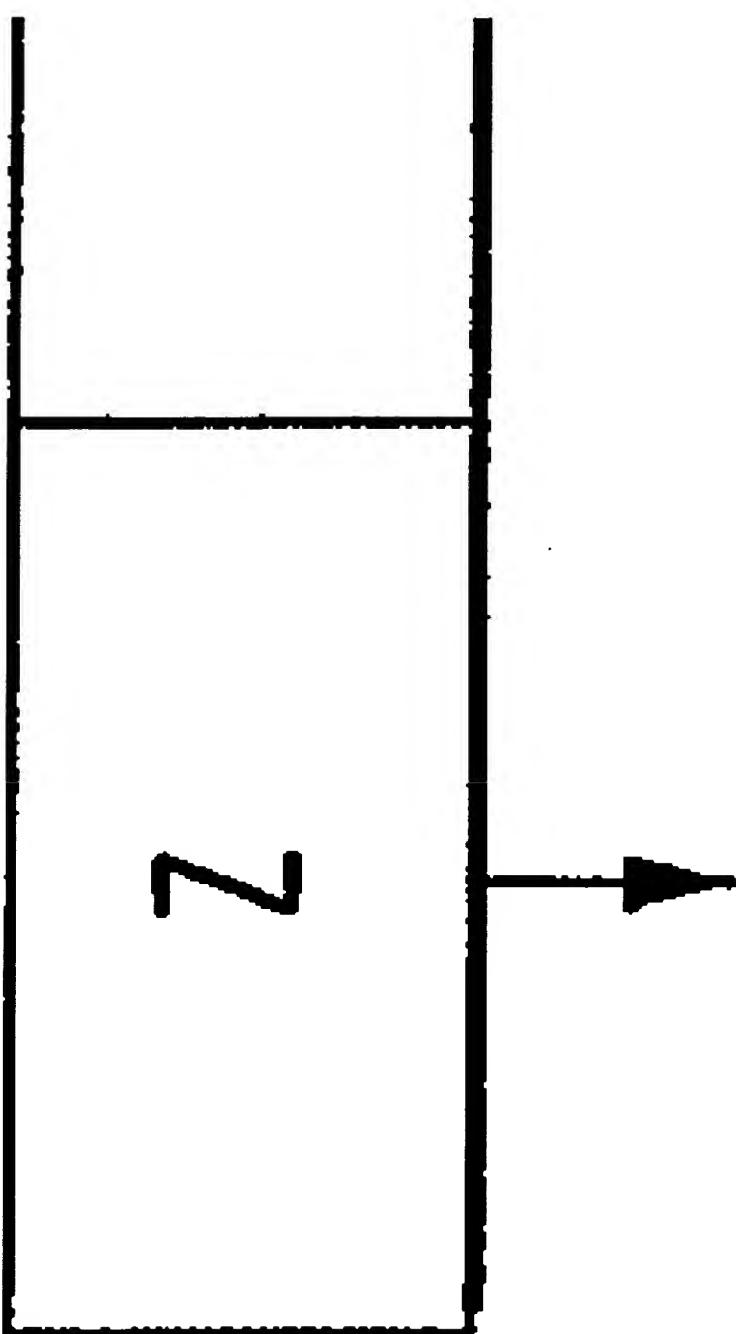
3) GENERATED CRYPTOGRAM
WEST
OFFSET, AUTHORITY





SEGMENT, OFFSET, AUT
SUPERVISOR(?) GENERATE

SUPERVISOR(G) GENERATE
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 **ACM SIGSOFT Software Engineering Notes , Proceedings of the fourth international workshop on Software and performance** January 2004
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 This paper has two contributions: a) it proposes a web services-based infrastructure to support Clinical Decision Support Systems (CDSSs) for processing multi-domain medical data from the obstetrical, perinatal and neonatal care domains, and b) applies Software Performance Engineering (SPE) to the proposed infrastructure. This extends a XML-based

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5 Document exchange model for augmenting added value of B2B collaboration 77%



Koichi Hayashi , Riichiro Mizoguchi

Proceedings of the 5th international conference on Electronic commerce September 2003

In this paper we present a B2B integration project, which aims to augment the added value of services instead of improving efficiency by automating processes. This paper introduces the VAalue Layered docUment Exchange (VALUE) model, which is a novel collaboration model adopted for this project. The key feature of the VALUE model is that partners exchange XML documents that are updated by adding elements for process information, such as the acceptance or rejection of a proposal, to received docume ...

6 Complex relationships and knowledge discovery support in the InfoQuilt system 77%



A. Sheth , S. Thacker , S. Patel

The VLDB Journal — The International Journal on Very Large Data Bases May 2003

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Support for semantic content is becoming more common in Web-accessible information systems. We see this support emerging with the use of ontologies and machine-readable, annotated documents. The practice of domain modeling coupled with the extraction of domain-specific, contextually relevant metadata also supports the use of semantics. These advancements enable knowledge discovery approaches that define complex relationships between data that is autonomously collected and managed. The InfoQuilt ...

7 Session 3: Stylesheet transformations for interactive visualization: towards a 77%



Web3D chemistry curricula

Nicholas F. Polys

Proceeding of the eighth international conference on 3D web technology March 2003

Recent Standards specifications offer important but underemployed techniques to maximize access-to and distribution-of information for real-time 3D visualization over the web. This paper describes and evaluates such techniques to transform structured data such as Chemical Markup Language (CML) to different forms and contexts for Web3D delivery using Extensible Stylesheet Transformations (XSLT), Extensible 3D (X3D), and VRML97. Standards design approaches offer a number of advantages: data durabi ...

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digital sky server data

Alexander S. Szalay , Jim Gray , Ani R. Thakar , Peter Z. Kunszt , Tanu Malik , Jordan Raddick , Christopher Stoughton , Jan vandenBerg

Proceedings of the 2002 ACM SIGMOD international conference on Management of data June 2002

The SkyServer provides Internet access to the public Sloan Digital Sky Survey (SDSS) data for both astronomers and for science education. This paper describes the SkyServer goals and architecture. It also describes our experience operating the SkyServer on the Internet. The SDSS data is public and well-documented so it makes a good test platform for research

The SDSS data is public and well-documented so it makes a good test platform for research

on database algorithms and performance.

10 B-trees: bearing fruits of all kinds

77%



Beng Chin Ooi , Kian-Lee Tan

Australian Computer Science Communications , Proceedings of the thirteenth Australasian conference on Database technologies - Volume 5 January 2002

Volume 24 Issue 2

Index structures are often used to support search operations in large databases. Many advanced database application domains such as spatial databases, multimedia databases, temporal databases, and object-oriented databases, call for index structures that are specially designed and tailored for the domains. Interestingly, in each of these domains, we find methods that are based on one distinct structure --- the B-tree. Invented some thirty years ago, the B-tree has been challenged repeatedly, but ...

11 The <bigwig> project

77%



Claus Brabrand , Anders Møller , Michael I. Schwartzbach

ACM Transactions on Internet Technology (TOIT) May 2002

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We present the results of the <bigwig> project, which aims to design and implement a high-level domain-specific language for programming interactive Web services.

A fundamental aspect of the development of the World Wide Web during the last decade is the gradual change from static to dynamic generation of Web pages. Generating Web pages dynamically in dialog with the client has the advantage of providing up-to-date and tailor-made information. The development of systems ...

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13 Implementing an e-commerce curriculum in a CIS program

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Rahul Tikekar , Daniel Wilson

The Journal of Computing in Small Colleges January 2001

Volume 16 Issue 2

In this paper we describe the development of an e-commerce curriculum in the CIS program at Southern Oregon University. The e-commerce curriculum is incorporated through a set of two courses. The first is a client-server programming course that introduces the structure of the web along with client and server side scripting techniques. The second is a corporate web development course, which builds on the earlier course by introducing elements of e-commerce technology such as security and encry ...

14 A reusable graphical user interface for manipulating object-oriented

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databases using Java and XML

Suzanne W. Dietrich , Dan Suciu , Chakrapani Cherukuri , Susan D. Urban

ACM SIGCSE Bulletin , Proceedings of the thirty-second SIGCSE technical symposium on Computer Science Education February 2001

Volume 33 Issue 1

This paper describes the design and functionality of a graphical user interface (GUI) written in Java Swing that is used to support instructional activities associated with teaching object-

oriented database (OODB) concepts. The GUI supports the manipulation of objects in an OODB, assuming the implementation of a specified interface for interacting with an OODB. By using the interface, students can focus on object-oriented design and programming concepts associated with OODB concepts rather than ...

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 Joan Boone
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Logic in Computer Science, 2003. Proceedings. 18th Annual IEEE Symposium on , 22-25 June 2003

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5 Constructing Web-based legacy index card archives-architectural design issues and initial data acquisition

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12 Very fast transient over-voltages and transient enclosure voltages in gas insulated substations

Amarnath, J.; Paramahansa, D.R.K.; Narasimharao, K.; Singh, B.P.; Shrivastava, K.D.;

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[\[Abstract\]](#) [\[PDF Full-Text \(333 KB\)\]](#) [IEEE CNF](#)

13 A tool-supported method to extract data and schema from Web sites

Estievenart, F.; Francois, A.; Henrard, J.; Hainaut, J.-L.;

Web Site Evolution, 2003. Theme: Architecture. Proceedings. Fifth IEEE International Workshop on , 22 Sept. 2003

Pages:3 - 11

[\[Abstract\]](#) [\[PDF Full-Text \(364 KB\)\]](#) [IEEE CNF](#)

14 Metadata for the legal domain

Palmirani, M.; Brighi, R.;

Database and Expert Systems Applications, 2003. Proceedings. 14th International Workshop on , 1-5 Sept. 2003

Pages:553 - 558

[\[Abstract\]](#) [\[PDF Full-Text \(247 KB\)\]](#) [IEEE CNF](#)

15 A novel laboratory version management system for tracking complex biological experiments

Shui, W.M.; Lam, N.; Wong, R.K.;

Bioinformatics and Bioengineering, 2003. Proceedings. Third IEEE Symposium on , 10-12 March 2003

Pages:133 - 140

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2 Embedding XML processing toolkit on general purpose programming language

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3 Realizing temporal XML repositories using temporal relational databases

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4 Using XML in relational database applications

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5 Constructing Web-based legacy index card archives-architectural design issues and initial data acquisition

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8 The chamois component-based knowledge engineering framework

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9 XML schema language: taking XML to the next level

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10 Can XForm transform the Web? Transcending the Web as GUI.II

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11 Implementation of a novel virtual patient record architecture

Berler, A.; Pavlopoulos, S.; Karkalis, G.; Sakka, E.; Konnis, G.; Koutsouris, D.;

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13 A tool-supported method to extract data and schema from Web sites

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[Artificial Intelligence for Decision Support: Needs.. - Miksch \(1995\) \(Correct\)](#)

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[Wafe - A Tcl Interface to the X Toolkit or A Graphical.. - Neumann, Nusser \(1996\) \(Correct\)](#)

:14 4.2.2 Resource Management over Resource Database 14 4.2.3 Obtaining Type and cell. XbaeMatrix has callbacks for doing field validation and customizing 112 traversal. It allows the X Toolkit Release 4, 5 or 6 (Xt) the Athena widget set (Xaw) and (incomplete) to the OSF/Motif
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www-ccs.cs.umass.edu/~sim/sigrec96.ps

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for largescale knowledge base systems based on database technologies and the three levels of seman
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[LOG: Building 3D User Interface Widgets by Demonstration - Matejic \(1993\) \(Correct\)](#)

concepts the user intends without requiring precise data from the user. We say that LOG handles approximate
LOG: Building 3D User Interface Widgets by Demonstration Larisa Matejic Department of
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[Scheduling Access To Temporal Data In Real-Time Databases - Xiong, Sivasankaran.. \(1997\) \(Correct\) \(3 citations\)](#)

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[Correction of a Memory Management Method for Lock-Free Data.. - Michael, Scott \(1995\) \(Correct\) \(5 citations\)](#)

of a Memory Management Method for LockFree Data Structures \Lambda Maged M. Michael Michael L.
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in cases where the number of available training data points is relatively sparse within x space. We
the kernel width, such as the leastsquare crossvalidation method [9]are also available with increasing
pierce.ee.washington.edu/~davisd/papers/tsp_kern.ps.gz

[Swing Based Remote GUI Emulation - Tilley, Eklund \(2000\) \(Correct\)](#)

1: Visualisation of a landbasin in 3D. A Spatial Database Management System (SDBMS) under development by
These are then rendered locally using Qt and widget callbacks are returned to the application via the
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instance an interactive graph editor) or to process data that changes at run time (for instance a dynamic
the system in order to produce the corresponding widget view (i.e. the actual visible GUI) and a graph of

www.infres.enst.fr/~elc/papers/avi98.ps

Implementing Fudgets with Standard Widget Sets - Reid, Singh (1998) (Correct) (4 citations)
calls to C language routines. Communicating data between Haskell and C programs is not trivial
event of an error (whether caused by failing the validation check or an unsuccessful query) an error shell
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parameter estimation problems from projected data. The experiments show that this probabilistic
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display and control of the multimedia data. The control operation is done by sending rate
Y link X link ServerNet Links Main Memory 4K Validation & Translation Logic Address Figure 7:
berserk.vlsi.uiuc.edu/people/ashfaq/ieee.mm97.ps

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query containment is a central problem in several database and knowledge base applications, including
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The Graph Widget - Implementation Manual - Beaudouin-Lafon (1992) (Correct)
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as these hidden inside vast collections of text data, possibly giving companies that competitive edge
www.geocities.com/~mjdixon/mark/writings/dixm97_dm.ps

A Hypertext System for Integrating Heterogeneous, Autonomous.. - Noll, Scacchi (1994) (Correct) (2 citations)
Hypertext System (DHT) Based on a hypertext data model and clientserver architecture, DHT
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CSDC The MoTIV Car Speech Data Collection Detlev Langmann 1, Hartmut R.
from VERBMOBIL transliterations, if necessary. Validation The transcribers checked the data
www.phonetik.uni-muenchen.de/Publications/Pfitzinger_LREC98b.ps

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File: PGPB

Jan 22, 2004

PGPUB-DOCUMENT-NUMBER: 20040015832

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20040015832 A1

TITLE: Method and apparatus for generating source code

PUBLICATION-DATE: January 22, 2004

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Stapp, Michael	Westford	MA	US	
Morgan, Robert	Concord	MA	US	

US-CL-CURRENT: 717/106; 717/149

[Full](#) | [Title](#) | [Citation](#) | [Front](#) | [Review](#) | [Classification](#) | [Date](#) | [Reference](#) | [Sequences](#) | [Attachments](#) | [Claims](#) | [KIMC](#) | [Draw Desc](#) | [In](#)

2. Document ID: US 20030145305 A1

L9: Entry 2 of 7

File: PGPB

Jul 31, 2003

PGPUB-DOCUMENT-NUMBER: 20030145305

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20030145305 A1

TITLE: Method for developing and managing large-scale web user interfaces (WUI) and computing system for said WUI

PUBLICATION-DATE: July 31, 2003

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Ruggier, Mario	Segny		FR	

US-CL-CURRENT: 717/100

ABSTRACT:

A method for developing and managing large-scale web user interfaces (WUI), comprising: designing and implementing the WUI using the Model View Controller (MVC) paradigm, and adding an additional layer (5) to the MVC paradigm, said additional layer (5) comprising a UI description (1), said UI description comprising all UI elements that are used by at least one of the MVC implementation components, such as views and the sub-elements used to define them, descriptions of content data, and the behavior of the WUI.

[Full](#) | [Title](#) | [Citation](#) | [Front](#) | [Review](#) | [Classification](#) | [Date](#) | [Reference](#) | [Sequences](#) | [Attachments](#) | [Claims](#) | [KMC](#) | [Drawn Desc](#) | [In](#)

3. Document ID: US 20020080200 A1

L9: Entry 3 of 7

File: PGPB

Jun 27, 2002

PGPUB-DOCUMENT-NUMBER: 20020080200

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20020080200 A1

TITLE: Method and apparatus for implementing a web application

PUBLICATION-DATE: June 27, 2002

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Wong, Garland	Rancho Santa Fe	CA	US	
Chue, Carlos	San Diego	CA	US	
Tang, Anthony	San Diego	CA	US	
Ghanbari, Reza	San Diego	CA	US	
Calire, Dyami	Encinitas	CA	US	
VanLydegraf, Eric	Solana Beach	CA	US	
Sanchez, Meliza P.	Carlsbad	CA	US	
Barnes, Trent	Vista	CA	US	

US-CL-CURRENT: 717/100

ABSTRACT:

In one embodiment, a method is described. The method of designing a web application includes designing a set of components, each component having a set of instances. The method also includes designing an application having references to the set of components. The method further includes designing an interface having references to the application, and building the application based on the interface and the designing of the application.

In an alternate embodiment, a method is also described. The method of providing a web-based application includes receiving a request for a web-based application. The method further includes accessing the web-based application. The method also includes accessing a set of objects related to the web-based application within a repository, and executing the web-based application including the set of objects in a manner including interaction with a requestor originating the request for the web-based application.

[Full](#) | [Title](#) | [Citation](#) | [Front](#) | [Review](#) | [Classification](#) | [Date](#) | [Reference](#) | [Sequences](#) | [Attachments](#) | [Claims](#) | [KMC](#) | [Drawn Desc](#) | [In](#)

4. Document ID: US 6601234 B1

L9: Entry 4 of 7

File: USPT

Jul 29, 2003

US-PAT-NO: 6601234

DOCUMENT-IDENTIFIER: US 6601234 B1

TITLE: Attribute dictionary in a business logic services environment

DATE-ISSUED: July 29, 2003

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Bowman-Amuah; Michel K.	Colorado Springs	CO		

US-CL-CURRENT: 717/108; 705/7, 717/107, 717/116

ABSTRACT:

A system and method are provided for controlling access to data of a business object via an attribute dictionary. The attribute dictionary, which stores attribute names and values, is dispatched over a network. A helper facade is provided for interfacing a business object and the attribute dictionary. Next, it is verified that a current user is authorized to either set or get one of the attribute values upon a request which includes the attribute name that corresponds to the attribute value. The helper facade is called to set, get, or update one of the attribute values based on the corresponding attribute name, wherein the helper facade shields the attribute dictionary from the application code of the business object. The attribute value in the attribute dictionary is obtained or updated if the verification is successful, and a dirty flag is set in the attribute dictionary and an indicator is broadcast upon the attribute value being updated.

15 Claims, 195 Drawing figures

Exemplary Claim Number: 1

Number of Drawing Sheets: 123

[Full](#) | [Title](#) | [Citation](#) | [Front](#) | [Review](#) | [Classification](#) | [Date](#) | [Reference](#) | [Abstract](#) | [Claims](#) | [KWMC](#) | [Drawn Desc](#) | [In](#)

5. Document ID: US 6550057 B1

L9: Entry 5 of 7

File: USPT

Apr 15, 2003

US-PAT-NO: 6550057

DOCUMENT-IDENTIFIER: US 6550057 B1

TITLE: Piecemeal retrieval in an information services patterns environment

DATE-ISSUED: April 15, 2003

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
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US-CL-CURRENT: 717/126; 700/80, 707/5, 717/101, 717/102, 717/108, 717/109, 717/113

ABSTRACT:

A system, method and article of manufacture are provided for providing a warning upon retrieval of objects that are incomplete. An object is provided with at least one missing attribute. Upon receipt of a request from an application for the object access to the attributes of the object is allowed by the application. A warning is provided upon an attempt to access the attribute of the object that is missing.

15 Claims, 195 Drawing figures

Exemplary Claim Number: 1

Number of Drawing Sheets: 123

Full	Title	Citation	Front	Review	Classification	Date	Reference	Abstract	Claims	KWIC	Draft Desc	In
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□ 6. Document ID: US 6442748 B1

L9: Entry 6 of 7

File: USPT

Aug 27, 2002

US-PAT-NO: 6442748

DOCUMENT-IDENTIFIER: US 6442748 B1

TITLE: System, method and article of manufacture for a persistent state and persistent object separator in an information services patterns environment

DATE-ISSUED: August 27, 2002

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Bowman-Amuah; Michel K.	Colorado Springs	CO		

US-CL-CURRENT: 717/108; 707/103R, 707/104.1, 707/9, 719/316

ABSTRACT:

A system, method and article of manufacture are provided for separating logic and data access concerns during development of a persistent object for insulating development of business logic from development of data access routine. A persistent object being developed is accessed and a state of the persistent object is detached into a separate state class. The state class serves as a contract between a logic development team and a data access development team. Logic development is limited by the logic development team to developing business logic. Data access development is restricted by the data access development team to providing data creation, retrieval, updating, and deletion capabilities.

18 Claims, 195 Drawing figures

Exemplary Claim Number: 1

Number of Drawing Sheets: 123

7. Document ID: US 5734907 A

L9: Entry 7 of 7

File: USPT

Mar 31, 1998

US-PAT-NO: 5734907

DOCUMENT-IDENTIFIER: US 5734907 A

TITLE: Method of programming an information processing device for network management applications using generic programming

DATE-ISSUED: March 31, 1998

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Jarossay; Mylene	Malakoff			FR
Attal; Denis	Chatillon			FR

US-CL-CURRENT: 717/141; 717/114, 717/139

ABSTRACT:

Method of programming an information processing system having a plurality of data processing devices connected with a network and having access to data stored in complex structures, such as sets or trees, including providing a programming language on said information processing system in which data types of variables used therein are defined by the content of the variables, allowing program variables used with said programming language to be defined without assigning a predetermined data type thereto, developing application programs of the network management type using said programming language, manipulating said complex data structures using said application programs by requesting and receiving data from said complex data structures without designating particular data types of the data to be received, and providing a language interpreter for said programming language on each of said plurality of data processing devices.

8 Claims, 3 Drawing figures

Exemplary Claim Number: 1

Number of Drawing Sheets: 3

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